

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Michiyasu KOMATSU, et al.

SERIAL NO: NEW APPLICATION

FILED: HEREWITH

FOR: SILICON NITRIDE WEAR RESISTANT MEMBER AND METHOD OF MANUFACTURING THE MEMBER

GAU:

EXAMINER:



INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Norman F. Oblon

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22850

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Michiyasu KOMATSU, et al.

SERIAL NO.: New Application

FILED: Herewith

FOR: SILICON NITRIDE WEAR RESISTANT MEMBER AND METHOD OF
MANUFACTURING THE MEMBER**STATEMENT OF RELEVANCY****Reference AQ (1-230478) on Form PTO-1449:**

This information discloses a uniform silicon nitride sintered body having a maximum pore size of $10\mu\text{m}$ or less and porosity of 0.5% or less. This reference discloses a similar structure of a silicon nitride sintered body used in the present invention. However, in this reference, there is no description about a wear resistant member composed of silicon nitride sintered body in which a maximum pore size in the grain boundary phase is $0.3\mu\text{m}$ or less.

Reference AP (63-319263) on Form PTO-1449:

This information discloses a silicon nitride sintered body containing a predetermined amount of TiN or fine grains of titan metal. This reference discloses a similar structure of a silicon nitride sintered body used in the present invention. However, in this reference, there is no description about a wear resistant member composed of silicon nitride sintered body in which a maximum pore size in the grain boundary phase is $0.3\mu\text{m}$ or less.

Reference AQ (11-49571) on Form PTO-1449:

This information discloses a silicon nitride sintered body and method of manufacturing the sintered body. The manufacturing method comprises: a first stage in which a molded compact is held at a temperature of $1400-1600^{\circ}\text{C}$ until open pores are substantially extinguished; and a second stage in which the molded compact is pressurized to 30 atoms or more, then sintered at a temperature of $1400-1500^{\circ}\text{C}$. This reference discloses a similar structure of a silicon nitride sintered body used in the present invention. However, in this reference, there is no description about a wear resistant member composed of silicon nitride sintered body in which a maximum pore size in the grain boundary phase is $0.3\mu\text{m}$ or less.

Docket No. 218075US0

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

INVENTOR(S) Michiyasu KOMATSU, et al.

SERIAL NO: New Application

FILING DATE: Herewith

FOR: SILICON NITRIDE WEAR RESISTANT MEMBER AND METHOD OF MANUFACTURING THE MEMBER

31017 U.S. PTO
10/042254
01/11/02

FEE TRANSMITTAL

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

FOR	NUMBER FILED	NUMBER EXTRA	RATE	CALCULATIONS
TOTAL CLAIMS	22 - 20 =	2	× \$18 =	\$36.00
INDEPENDENT CLAIMS	2 - 3 =	0	× \$84 =	\$0.00
<input checked="" type="checkbox"/> MULTIPLE DEPENDENT CLAIMS (If applicable)			+ \$280 =	\$280.00
<input checked="" type="checkbox"/> LATE FILING OF DECLARATION			+ \$130 =	\$130.00
			BASIC FEE	\$740.00
			TOTAL OF ABOVE CALCULATIONS	\$1,186.00
<input type="checkbox"/> REDUCTION BY 50% FOR FILING BY SMALL ENTITY				\$0.00
<input type="checkbox"/> FILING IN NON-ENGLISH LANGUAGE			+ \$130 =	\$0.00
<input type="checkbox"/> RECORDATION OF ASSIGNMENT			+ \$40 =	\$0.00
			TOTAL	\$1,186.00

- ☐ Please charge Deposit Account No. 15-0030 in the amount of _____ A duplicate copy of this sheet is enclosed.
- ☒ A check in the amount of \$1,186.00 to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to Deposit Account No. 15-0030.
A duplicate copy of this sheet is enclosed.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
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Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

218075US0

SERIAL NO.

NEW APPLICATION

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Michiyasu KOMATSU, et al.

FILING DATE

HEREWITH

GROUP

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	1-230478	9/13/89	Japan		X
	AP	63-319263	12/27/88	Japan		X
	AQ	11-49571	2/23/99	Japan		X
	AR					
	AS					
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

10/042254
U.S. PTO

01/11/02